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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/161,699	09/29/1998	KOICHI KIMURA	Q49742	7949

7590

12/26/2002

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WASHINGTON, DC 200373202

EXAMINER

LANEAU, RONALD

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 12/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/161,699

Applicant(s)

KIMURA, KOICHI

Examiner

Ronald Laneau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6,8-16 and 18-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-6,8-16 and 18-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

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Response to Amendment

1. The request for reconsideration filed on 10/17/02 has been entered. Claims 2-6, 8-16, and 18-34 are still pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-6, 8-16 and 18-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahara et al (US 6,177,965) in view of Okumura et al (US 6,115,018).

As per claims 2, 3, 6-8, Takahara et al disclose a ferroelectric liquid crystal display device provided with a first substrate on which pixel electrodes are arranged in matrix and striped electrodes corresponding to rows of the pixel electrodes and a second substrate with counter electrodes. It is so constituted that a different voltage can be impressed to any optional striped electrode from that of a striped electrode adjacent to the optional electrode. Takahara et al disclose a light modulation layer that is held between the first and second substrates (col. 4, lines 7-15), one end of the striped electrode is electrically connected to a drive circuit so that each striped electrode receives a predetermined voltage from the drive circuit (col. 3, lines 64-66).

Okumura et al is cited to show that the concept of broadly utilizing a drive circuit consisting of a single TFT transistor (14) connected to a pixel electrode wherein the drive circuit

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performs row selection with a gate electrode of the transistor and writes data with a source electrode and drain electrode of the transistor is old (see fig. 1). Thus, it would have been obvious to one of ordinary skill in the art to modify the system of Takahara et al such that to only utilize a single ferroelectric gate field-effect transistor (104 and 105) wherein the drive circuit performs row selection with a gate electrode and writes data with a source electrode and drain electrode of the transistor (104 or 105), as evidenced by Okumura et al, because both references are directed to two-dimensional active matrix type light modulation device.

In claims 2, 4, 10, and 12, as to limitation "first and second polarization state", Takahara et al teach negative-positive polarity voltage that changes the polarization state of the liquid crystal when data is writing (see abstract).

As to claims 6 and 14, relative to the limitation "modulation by binary static drive", while Takahara et al do not explicitly specify "modulation by binary static drive" in their disclosure, but it is noted that their system is capable of performing gradation or halftoning for providing a multi-gradation display (col. 21, lines 28-30; col. 23, lines 47-54). Therefore, it would have been obvious to one of ordinary skill in the art to modify the system of Takahara et al such that the drive circuit performs modulation by binary static drive because "binary static drive" is considered to be an alternative equivalent driving technique for providing a multi-gradation display device.

As to claims 28-34, Takahara et al teach a single ferroelectric gate transistor per pixel that has its gate connected to a data line (fig. 7). Takahara et al do not explicitly show a second ferroelectric gate transistor connected to a second data line but it would have been obvious to one of ordinary skill in the art to utilize a second ferroelectric gate transistor as claimed because it

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would comprise not only a field effect transistor wherein the ferroelectric substance may be provided as the gate insulator film of the field effect transistor but may also be provided as an element separate from the field effect transistor.

Response to Arguments

4. Applicant's arguments filed on 10/17/02 have been fully considered but they are not persuasive.

Applicant's arguments about Nakai et al are moot in view the newly added reference. As far as Okumura et al teaching away from a single ferroelectric FET, the examiner disagrees that Okumura et al do teach a drive circuit with a single FET as claimed. As to claims 6 and 14, applicant requests that the examiner provides a proper reference to show the equivalence between binary static drive and the drive for a multigradation display device. The reasons stated in claims 6 and 14 are clear enough for one skilled in the art to understand and reference showing the equivalence is not needed at this time. As a result, the rejection stands.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Akiyama et al (US 5,986,724).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Laneau whose telephone number is 703-305-3973. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:00 PM or via email: ronald.laneau@uspto.gov.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached at 703-305-4709.

7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Ronald Laneau
Examiner
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December 20, 2002